regarded as constant and the absolute amount disposed of as a variable depending on the amount present. On this basis the disposal of strychnine by the rat may reach at least 1 mgm. per kilo per hour. This occurs only when the strychninization is kept constantly very close to the maximum limit, by absorption from the gastro-intestinal tract.

The coefficients as determined arithmetically have been checked by a new experimental criterion, namely, the relation of survivals to fatalities in a given uniformly treated series and comparison of one such series with another.

The extremely high tolerance of the rat (as well as of other animals) to consecutive injections of strychnine would seem to be significant with respect to the possibility of correlating this with the failure to demonstrate as yet an habituation to this drug.

BOTULISM FROM THE REGULATORY POINT OF VIEW.[3]

By Charles Thom.

[ABSTRACT.]

TRANSFORMED into concrete suggestions, responsibility for food poisoning, in so far as canned goods are concerned, rests about equally upon the dealer and upon the household. Every dealer should be made to feel a direct and positive obligation to remove from sale any can of food which shows sign of spoilage, and to condemn as dangerous and return to the packer any lot in which spoilage appears in considerable percentage. Correspondingly, some one, at least, in every household, should definitely understand the dangers of spoiled food, canned or uncanned, make intelligent examination of all food bought and apply discriminating care to all food stored in the home.

As a basis for propaganda to eliminate the danger of poisoning cases, these recommendations may be given the widest publicity.

(1) Clean, fresh, sound food will not cause botulism.

(2) Food freshly heated to the boiling point will not cause botulism.

(3) Recooking is advised whenever opportunity for microbial activity has been given, but only before spoilage becomes evident by appearance, odor or taste. Food showing signs of decom-

[3] Published in *Am. J. Public Health*, 12 (1922), 49.

position is potentially dangerous; hence physical evidence of spoilage should lead to destruction, not to salvaging.

(4) Intelligent coöperation of packer, dealer, and householder in the examination of food before it reaches the table is essential to the prevention of botulism.

RATIONS FOR FEEDING POULTRY FOR THE PACKING HOUSE.[4]

Contribution from the Food Research Laboratory.

[ABSTRACT.]

EXTENSIVE feeding experiments on both a laboratory and commercial scale showed that a great variety of feeds can be used in fattening broilers, springs, roasters, and hens. Numerous analyses of unfed and fed birds are recorded. Data are given on the weight lost by range and fed birds during dressing, on the percentage increase in weight of the different classes of birds receiving the experimental rations for fourteen days and of those fed the control ration of cornmeal (forty parts) and buttermilk (sixty parts) for four, eight, eleven and fourteen days, and on the character of gains made in fourteen days by the use of the control ration. The experiments show clearly that the growing birds require a different ration from that of the adult fowl. The merits of different feeds from the standpoint of their content in protein, fats, carbohydrates, salts, and vitamines are discussed.

Demonstration of the Protective Effect of a Colloid.—Prof. J. Newton Friend communicates to *Nature* the following experiment showing the effect of a colloid on chemical change. This is afforded by the precipitation of mercuric iodide on addition of the chloride to potassium iodide. If this is effected in fairly dilute aqueous solution, the unstable yellow form is first precipitated and rapidly turns from orange to red as it becomes converted to the more stable variety. If, however, the reaction is carried out in the presence of gelatin, say, one per cent., the liquid first turns momentarily yellow, due to the formation of colloidal mercuric iodide, then becomes turbid, and a beautiful canary color develops, which remains practically unchanged for half an hour or more, according to circumstances. Only very slowly does it change to the red polymorph. The protective colloid retards the growth of the yellow particles. Sunlight accelerates the

[4] *U. S. Department of Agriculture Bulletin,* issued March 13, 1922.